



Claims 1-40. (Canceled)

41. (Currently amended) A magnetic random access memory structure comprising:

a longitudinally extending planarized conductive line formed within an insulating layer;

~~an electroplated bottom sense layer over said conductive line, the electroplated bottom sense layer being formed in openings that extend longitudinally over said conductive line, where said openings are trenches extending longitudinally over said conductive line;~~

a nonmagnetic tunnel barrier layer over said sense layer;

a pinned layer over said nonmagnetic layer; and

at least one electrical conductor in contact with said pinned layer.

42. (Original) The structure of claim 41 wherein said sense layer is formed of NiFe.

43. (Original) The structure of claim 41 wherein said insulating layer is selected from the group consisting of BPSG, SiO₂, Si₃N₄ and polyimide.

44. (Original) The structure of claim 41 wherein said nonmagnetic layer is aluminum oxide.

45. (Previously presented) The structure of claim 41 wherein said sense layer is a ferromagnetic sense layer.

46. (Original) The structure of claim 41 wherein said pinned layer is formed of a plurality of layers to produce a ferromagnetic pinned layer.

47. (Currently amended) A processor-based system, comprising:

a processor; and

an integrated circuit coupled to said processor, said integrated circuit including a plurality of magnetic random access memory cells, each of said magnetic random access memory cells including an electroplated bottom sense layer formed over a planarized conductor, the bottom sense layer ~~being formed in openings made in a dielectric layer and extends~~ extending longitudinally over said planarized conductor, where said openings are trenches, a nonmagnetic layer formed over said sense layer and a pinned layer formed over said nonmagnetic layer.

48. (Original) The system of claim 47 wherein said sense layer is formed of NiFe.

49. (Original) The system of claim 47 wherein said nonmagnetic layer is aluminum oxide.

50. (Previously presented) The system of claim 47 wherein said sense layer is a ferromagnetic sense layer.

51. (Original) The system of claim 47 wherein said pinned layer is formed of a plurality of layers to produce a ferromagnetic pinned layer.

Claims 52-54. (Canceled)

55. (Currently amended) A magnetic random access memory structure comprising:

a longitudinally extending planarized conductive line formed within an insulating layer;

~~an electroplated ferromagnetic layer over said conductive line, the electroplated ferromagnetic layer being formed in openings that extend longitudinally over said conductive line, where said openings are trenches extending longitudinally over said conductive line;~~

a nonmagnetic tunnel barrier layer over said electroplated ferromagnetic layer;

an upper ferromagnetic layer over said nonmagnetic layer; and

at least one electrical conductor in contact with said upper layer.

56. (Previously presented) The structure of claim 55 wherein said electroplated ferromagnetic layer is formed of NiFe.

57. (Previously presented) The structure of claim 55 wherein said insulating layer is selected from the group consisting of BPSG, SiO, SiO₂, Si₃N₄ and polyimide.

58. (Previously presented) The structure of claim 55 wherein said nonmagnetic layer is aluminum oxide.

59. (Previously presented) The structure of claim 55 wherein said electroplated ferromagnetic layer is a ferromagnetic sense layer.

60. (Previously presented) The structure of claim 55, wherein said upper layer is formed of a plurality of layers to produce a ferromagnetic pinned layer.

61. (Currently amended) A processor-based system, comprising:

a processor; and

an integrated circuit coupled to said processor, said integrated circuit including a plurality of magnetic random access memory cells, each of said magnetic random access memory cells including an electroplated bottom sense layer formed over a planarized conductor, the bottom sense layer ~~being formed in openings that extend longitudinally over said planarized conductor, where said openings are trenches extending longitudinally over said planarized conductor~~, a nonmagnetic layer formed over said sense layer and a pinned layer formed over said nonmagnetic layer.

62. (Previously Presented) The system of claim 61 wherein said sense layer is formed of NiFe.

63. (Previously Presented) The system of claim 61 wherein said nonmagnetic layer is aluminum oxide.

64. (Previously Presented) The system of claim 61 wherein said sense layer is a ferromagnetic sense layer.

65. (Previously Presented) The system of claim 61 wherein said pinned layer is formed of a plurality of layers to produce a ferromagnetic pinned layer.